Spline

1) We ask the user for X_1, X_2,... ,X_n and $f(X_1)$, $f(X_2)$,... ,$f(X_n)$ and we ask the user to input a 1 if lineal is required, a 2 if quadratic is required, or a 3 if cubic is required.

2) If input was 1 (for lineal)

   a) for $i = 0 < i = n\text{-}1$

      (i) $M_i = (f(X_{i+1}) - f(X_i)) \;/\; (X_{i+1} - X_i)$

      (ii) Return $p(X) = (f(X_{i+1})\text{-}f(X_i)) = M_i*(X\text{-}X_i)$

3) If input was 2 (for quadratic)

   a) for $i = 1 < i = n$

      (i) $p(X) = A_i*X_i^2 + B_i*X_i + C_i$

   b) for $i = 2 < i = n$

      (i) $p(X) = 2*A_{i-1}*X_{i-1} + B_{i-1} = 2*A_i*X_{i-1} + B_i$

   c) To be natural Spline

      (i) $p(X) = 2*A_{i-1}*X_n + B_{i-1}=0$

      (ii) $p(X) = 2*A_i*X_n + B_i = 0$

4) If input was 3 (for cubic)

   a) for $i = 1 < i = n$

      (i) $p(X) = A_i*X_i^3 + B_i*X_i^2 + C_i*X_i + D_i$

   b) for $i = 2 < i = n$

      (i) $p(X) = 3*A_{i-1}*X_{i-1}^2 + 2*B_{i-1}*X_{i-1} + C_{i-1} = 3*A_i*X_{i-1}^2 + 2*B_i*X_{i-1} + C_i$

   c) for $i = 3 < i = n$

      (i) $p(X) = 6*A_{i-1}*X_{i-1} + 2*B_{i-1} = 6*A_{i-1}*X_i + 2*B_{i-1}$

   d) To be natural Spline

      (i) $p(X) = 6*A_{i-1}*X_0 + B_{i-1} = 0$

      (ii) $p(X) = 6*A_i*X_n + B_i = 0$